Attachment II to Administrative Order on Consent for Remedial Design

SCOPE OF WORK

FOR REMEDIAL DESIGN of REMEDIAL ACTION AND OPERATION AND MAINTENANCE AT THE

WAUKEGAN MANUFACTURED GAS AND COKE PLANT - OPERABLE UNIT 2 OUTBOARD MARINE CORPORATION SITE WAUKEGAN, ILLINOIS

I PURPOSE

This Scope of Work sets forth requirements for the remedial design of all components of the remedial action set forth in the Record of Decision (ROD) for the Waukegan Manufactured Gas and Coke Plant site, designated as Operable Unit 2 of the Outboard Marine Corporation Superfund site (the Site), Waukegan, IL, that U.S. EPA signed on September 30, 1999. The Performing Respondents shall follow the ROD, the SOW, the Administrative Order on Consent (AOC), U.S. EPA Superfund Remedial Design (RD) and Remedial Action (RA) Guidance (OSWER Directive No. 9355.0-4A), and any additional published guidance by U.S. EPA in submitting deliverables for the remedial design of the remedial action at the Site.

II REMEDIAL DESIGN/PERFORMANCE STANDARDS

Overview of the Remedial Design

The Performing Respondents shall perform the following as set forth in the ROD to design the remedial action at the Site:

a. the conduct of additional soil sampling at the Site to determine the extent of polynuclear aromatic hydrocarbon (PAH)-, arsenic-, and creosote-contaminated soils contamination (as defined in the ROD) to complete the remedial design;
b. the design of the PAH-, arsenic-, and creosote-contaminated soils remedy;
c. the completion of a Soils Management Plan;
d. the conduct of (ongoing) surface water quality monitoring;
e. the conduct of additional groundwater monitoring at the Site to more precisely define the extent of groundwater treatment zones identified in the ROD, specifically: 1) the north-south extent at the beach; and 2) the extent south of Slip 4;
f. the conduct of detailed, three-dimensional computer modelling, based on the results of the Groundwater Pilot Project, to optimize well spacing, well screen placement, extraction/injection rates, and cell operation sequencing for the low flow, cell-based groundwater extraction system;

g. the conduct of a bench scale nitrification study to define kinetic parameters required for successful scale-up of the biological treatment process for the extracted groundwater treatment system;
h. the design of a Monitored Natural Attenuation (MNA) study;
i. the design of the groundwater remedial action, including the use of data obtained from the Groundwater Pilot Project, additional groundwater monitoring, computer modeling and bench scale nitrification study; and
j. the design of the operation and maintenance of all on-site remedial actions.

RD Work Plan

The Performing Respondents shall develop and submit to U.S. EPA for review and approval a complete RD Work Plan within forty-five (45) days of the effective date of the AOC. The complete RD Work Plan shall set forth the schedule and tasks necessary to complete all the pre-design and design work required by the ROD for the Site. Once U.S. EPA approves the RD Work Plan, the Performing Respondents shall implement the RD Work Plan in accordance with the approved schedule therein. The RD Work Plan shall make provisions for a Soils Operable Unit and a Groundwater Operable Unit. U.S. EPA may approve either or both Operable Unit Work Plan(s) and the Performing Respondents shall begin the design for the approved Operable Unit while revising the RD Work Plan for the disapproved Operable Unit for resubmittal to U.S. EPA for review and approval.

Performance Standards

The Performing Respondents shall design the remedial action described in the ROD to meet the performance standards and specifications set forth therein and in this SOW. Performance standards shall include cleanup levels set forth in the ROD in Tables 4, 5, and 6, standards of control, quality criteria, risk calculations and other substantive requirements, criteria or limitations including all Applicable or Relevant and Appropriate Requirements (ARARs) set forth in the ROD, the SOW, and/or the AOC.

III GENERAL PROVISIONS

Submittals made by the Performing Respondents to U.S. EPA for review and approval shall also be made to the state for review and comment.

Any risk calculations required pursuant to completion of requirements of this SOW are subject to approval by U.S. EPA. These calculations will be performed according to applicable U.S. EPA procedures and guidelines, including the Risk Assessment Guidance for Superfund Manual (December 1989), as amended, and/or other U.S. EPA guidance in effect at the time the calculations are performed.

In addition to compliance with the cleanup levels set forth in the ROD and the Performance Standards for the design, the Performing Respondents shall meet all applicable Federal, state and local laws, regulations and standards in place as of the effective date of the ROD, September 30, 1999, including, but not limited to, requirements regarding discharges of hazardous substances, pollutants, or contaminants to the Site and to surface waters. As stated in the ROD, the selected remedy will require an interim waiver of the Federal Underground Injection Control and corresponding State of Illinois regulations.

Any activities which take place in or impact wetlands shall be conducted in compliance with Section 104 of the Clean Water Act and with Wetland Management Executive Order 11990 for protection of wetlands, and other Federal and State standards, as applicable. The Performing Respondents shall also comply with all requirements regarding the protection of state and/or Federal endangered and threatened species at the Site.

IV DESCRIPTION OF THE REMEDIAL DESIGN

The scope of work for the remedial design activities required to implement the ROD is presented below:

a. The Performing Respondents shall develop and submit to U.S. EPA for approval a site security plan that provides for restricting access to the Site, protecting on-site investigation and monitoring systems from vandalism, etc. The plan may include, but is not limited to, the installation of fencing and warning signs. Upon U.S. EPA approval of the site security plan, the Performing Respondents shall implement the plan in accordance with the approved RD Work Plan and the AOC.

b. The Performing Respondents shall develop and submit to U.S. EPA for review and approval, a Predesign Study Plan. The Predesign Study Plan shall include Soil and Groundwater Operable Units as follows:

   i) a sampling and analysis plan for additional soil sampling needed to determine the extent of polynuclear aromatic hydrocarbon (PAH)-, arsenic-, and creosote-contaminated soils contamination as defined in the ROD at the Site;
   ii) a sampling and analysis plan for additional groundwater monitoring needed to more precisely define the extent of groundwater treatment zones identified in the ROD, specifically: 1) the north-south extent at the beach; and 2) the extent south of Slip 4;
   iii) a sampling and analysis plan for ongoing surface water quality monitoring;
   iv) a sampling and analysis plan for monitoring to support the MNA study;
   v) a plan to conduct detailed, three-dimensional computer modelling needed to optimize well spacing, well screen placement, extraction/injection rates

and cell operation configuration; and

vi) a plan to conduct a bench scale nitrification study need to define kinetic parameters required for successful scale up of the biological treatment process.

Once U.S. EPA approves the Predesign Study Plan, the Performing Respondents shall conduct the sampling and analyses and submit reports to U.S. EPA for review and approval in accordance with the approved Predesign Study Plan schedule.

c. The Performing Respondents shall develop and submit to U.S. EPA for review and approval the RD for the PAH-, arsenic-, and creosote-contaminated soils remedial action. The Performing Respondents shall complete the RD and submit it to U.S. EPA for review and approval in accordance with the approved RD Work Plan schedule.

d. The Performing Respondents shall develop and submit to U.S. EPA for review and approval a Soils Management Plan (SMP). The SMP shall identify the process for identifying and implementing future land-use decisions at the Site, including utility installation and repair and foundation installation, taking into account the location(s) of treated soils and other impacted soils left on site and impacted groundwater. The SMP shall also include the implementation, monitoring, and enforcement of institutional controls (e.g., deed notices, easements/land use restrictions, zoning/development restrictions, well drilling prohibitions, groundwater management zones). The Performing Respondents shall develop the SMP and submit it to U.S. EPA for review and approval. Once U.S. EPA approves the SMP, the Performing Respondents shall implement the plan in accordance with the approved RD Work Plan schedule.

e. The Performing Respondents shall develop and submit to U.S. EPA for review and approval the RD for the short-term (Phase I) groundwater cleanup system in accordance with the approved RD Work Plan schedule.

f. The Performing Respondents shall develop and submit to U.S. EPA for review and approval the RD for the long-term (Phase II) final groundwater cleanup system in accordance with the approved RD Work Plan Schedule.

g. The Performing Respondents shall develop and submit to U.S. EPA for review and approval the RD for the long-term Operations and Maintenance (O&M) Plan for all on-site remedial actions. The Performing Respondents shall develop the O&M Plan and submit it to U.S. EPA, in consultation with the state, for review and approval.

V REMEDIAL DESIGN

The Remedial Design phase shall consist of the following tasks:

Task 1: Remedial Design Work Plan

The Performing Respondents shall develop and submit to U.S. EPA for review and approval a RD Work Plan that documents the management strategy and schedules the Performing Respondents will follow to complete the Predesign Study and design plans and specifications for the remedial components outlined in Section IV, above. The RD Work Plan shall document the responsibility and authority of all organizations and key personnel involved with the implementation of the Remedial Design phase, including contractor personnel. The Performing Respondents shall submit the RD Work Plan in accordance with the schedule in the AOC and this SOW.

Task 2: Detailed Predesign Study Work Plan

The Performing Respondents shall, for the Predesign Study Elements described in Section IV(b)(i), IV(b)(ii), IV(b)(iii), and IV(b)(iv), develop and submit to U.S. EPA for review and approval a Detailed Predesign Study Work Plan that includes the following:

A. Sampling and Analysis Plan

The Performing Respondents shall develop a Sampling (and Analysis) Plan as described in "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," October 1988 and/or the most current Region 5 Guidance and submit it to U.S. EPA for review and approval. The Sampling Plan should supplement the QAPP and address all sample collection activities, including soils, groundwater, and treatment system influent/effluent water quality monitoring.

B. Quality Assurance Project Plan

The Performing Respondents shall develop a Site-specific QAPP and submit it to U.S. EPA for review and approval. The contents of the QAPP shall cover sample taking, sample analysis, and data handling for samples collected in the predesign work undertaken pursuant to the AOC. The QAPP shall be consistent with the requirements of current U.S. EPA guidance for QAPPs, the November 1999 directive issued by the Office of Environmental Information Quality Staff titled "EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5)." The QA/R-5 document is available at www.epa.gov/quality.

Note: QAPPs already approved using previous requirements and guidance documents will not need to be rewritten to conform to the QA/R-5 format and content. All new QAPPs that are prepared should use the instructions and the QA/R-5 document.

The Performing Respondents may be required to attend a pre-QAPP meeting with U.S. EPA QA reviewers before they submit the QAPP to U.S. EPA for review and approval. The Performing Respondents shall ensure that they follow the most current U.S. EPA

guidance documents.

C. Health and Safety Plan

The Performing Respondents shall develop and submit to U.S. EPA for review and comment a Site-specific HSP which is designed to protect investigation personnel and area residents from physical, chemical, and other hazards posed by any work at the Site. The Health and Safety Plan shall follow OSHA requirements as outlined in 29 CFR 1910 and 1926.

The Performing Respondents shall submit the Predesign Study Plan in accordance with the schedule in the RD Work Plan.

The Performing Respondents shall, for the Predesign Study Elements described in Section IV(b)(v) and IV(b)(vi), develop and submit to U.S. EPA for review and approval a Detailed Predesign Study Work Plan. The Work Plan shall describe individual subtasks required to complete the Predesign Study for the elements identified above.

Task 3: Implement Predesign Study

The Performing Respondents shall conduct the work identified in the approved Predesign Study Plan in accordance with the schedule approved therein.

The Performing Respondents shall conduct the work so as to obtain and present all information necessary to complete the Predesign Study. The Performing Respondents shall submit the Predesign Study Report to U.S. EPA for review and approval prior to implementing the Remedial Design

Task 4: Implement Remedial Design Work Plan

Following completion of the Predesign Study the Performing Respondents shall conduct the work identified in the approved RD Work Plan in accordance with the approved schedule therein. The Performing Respondents shall conduct the work so as to obtain and present all information necessary to complete the remedial design phase. The Performing Respondents shall submit to U.S. EPA for review and approval the Predesign Report and the design plans and specifications in accordance with the schedule in Section VI, below.

The Performing Respondents shall prepare the design plans and specifications to implement the RA at the Site as described in the ROD and this SOW. All design plans and specifications shall be developed in accordance with U.S. EPA RD/RA Guidance and shall demonstrate that the RA shall meet all objectives of the ROD, the AOC, and this SOW.

A. Preliminary Design

The Performing Respondents shall submit the Preliminary Design for each operable unit to U.S. EPA for review and approval when the design effort is approximately 30% complete. The Preliminary Design submittal shall include or discuss, at a minimum, the following:

1. Preliminary plans, drawings, and sketches, including design calculations;

2. Results of studies and additional sampling and analyses, if any, conducted after the Predesign Study;

3. Design assumptions and parameters, including design restrictions, process performance criteria, appropriate unit processes for the treatment train, and expected removal or treatment efficiencies for both the process and waste (concentration and volume);

4. Proposed cleanup verification methods, including compliance with Applicable or Relevant and Appropriate Requirements (ARARs);

5. Outline of required specifications;

6. Proposed siting of processes and construction activity;

7. A plan to assist in keeping the near-by population informed about Site activities;

8. Expected long-term monitoring and operation requirements;

9. Real estate, easement, and permit requirements; and

10. Preliminary construction schedule, including contracting strategy.

B. Design Progress Meeting

The Performing Respondents shall attend a Design Progress Meeting with U.S. EPA within 45 days after receipt of comments on the Preliminary Design. The meeting purpose shall be to review, understand, and discuss the design progress. The Design Progress Meeting shall include the following agenda for discussion items:

1. Introduction;
2. Site Background and Existing Conditions;
3. Remedial Action Team;
4. Conceptual RA Design;
5. Design Drawings;

6. Schedule;
7. Performance Standard Verification Plan;
8. Field Sampling Plan;
9. Quality Assurance Project Plan;
10. Health and Safety Plan;
11. Contingency Plan;
12. Construction Quality Assurance Plan;
13. Operation and Maintenance Plan;
14. Perimeter Air Monitoring (if required); and
15. Miscellaneous Items

The Performing Respondents shall prepare and submit meeting minutes within 14 days of the Design Progress Meeting.

C. Prefinal and Final Designs

Performing Respondents shall submit the Prefinal Design when the design effort is 95% complete and shall submit the Final Design when the design effort is 100% complete. The Prefinal Design shall fully address all comments made to the preceding design submittal.

The Prefinal Design submittal shall include:

1. Prefinal plans, drawings, and sketches and responses to EPA comments on the design calculations;

2. Results of studies and additional sampling and analyses conducted after the Predesign Study;

3. Responses to EPA comments on design assumptions and parameters, including design restrictions, process performance criteria, appropriate unit processes for the treatment train, and expected removal or treatment efficiencies for both the process and waste (concentration and volume);

4. Proposed cleanup verification methods, including compliance with ARARs;

5. Draft technical specifications;

6. Proposed siting of processes and construction activity;

7. Real estate, easement, and permit requirements; and

8. Revised construction schedule, including contracting strategy.

The Prefinal Design submittal shall also include the following Remedial Action (RA) supporting plans:

1. Draft Performance Standard Verification Plan;
2. Draft Construction Quality Assurance Plan (CQAP);
3. Draft Quality Assurance Project Plan (QAPP), Health and Safety Plan (HSP), Sampling Plan, and Contingency Plan.

At the discretion of U.S. EPA, the Performing Respondents may be allowed to submit for review and approval appropriately revised versions of existing supporting plans.

Content of RA Supporting Plans

1. Quality Assurance Project Plan

The Performing Respondents shall develop a site-specific QAPP and submit it to U.S. EPA for review and approval. The contents of the QAPP shall cover sample taking, sample analysis, and data handling for samples collected in all phases of site work to be undertaken during the RA. The QAPP shall be consistent with the requirements of current U.S. EPA guidance for QAPPs, the November 1999 directive issued by the Office of Environmental Information Quality Staff titled "EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5)." The QA/R-5 document is available at www.epa.gov/quality.

2. Health and Safety Plan

The Performing Respondents shall develop and submit to U.S. EPA for review and comment a site-specific HSP which is designed to protect construction personnel and area residents from physical, chemical, and other hazards posed by any work at the Site during the RA. The Health and Safety Plan shall follow OSHA requirements as outlined in 29 CFR 1910 and 1926.

3. Contingency Plan

The Performing Respondents shall develop and submit to U.S. EPA for review and comment a Contingency Plan that describes the mitigation procedures they will use in the event of an accident or emergency at the Site. The Contingency Plan may be incorporated into the HSP. The final Contingency Plan shall be submitted prior to the start of construction, in accordance with the approved construction schedule. The Contingency Plan shall include, at a minimum, the following:

a. Name of the person or entity responsible for responding in the event of an emergency incident;

b. Plan and date to meet with the local community, including local, State and Federal agencies involved in the Remedial Action, as well as local emergency squads and hospitals; and,

c. First aid medical information

4. Sampling Plan

The Performing Respondents shall develop a Sampling (and Analysis) Plan as described in "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," October 1988 and/or the most current Region 5 Guidance and submit it to U.S. EPA for review and approval. The Sampling Plan should supplement the QAPP and address all sample collection activities, including soils, groundwater, and treatment system influent/effluent water quality monitoring.

5. Construction Quality Assurance Plan

The Performing Respondents shall develop and submit to U.S. EPA for review and approval a CQAP which describes the site specific components of the quality assurance program that the Performing Respondents shall use to ensure that the completed project meets or exceeds all design criteria, plans, and specifications. The final CQAP shall be submitted in accordance with the approved RA Work Plan schedule. The CQAP shall contain, at a minimum, the following elements:

a. Responsibilities and authorities of all organizations and key personnel involved in the design and construction of the Remedial Action.

b. Qualifications of the Quality Assurance Official to demonstrate that he/she possesses the training and experience necessary to fulfill his/her identified responsibilities.

c. Protocols for sampling and testing used to monitor construction.

d. Identification of proposed quality assurance sampling activities including the sample size, locations, frequency of testing, acceptance and rejection data sheets, problem identification and corrective measures reports, evaluation reports, acceptance reports, and final documentation.

e. Reporting requirements for CQAP activities shall be described in detail in the CQAP. This shall include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, and design acceptance reports, and final documentation. Provisions for the final storage of all Site cleanup records shall be presented in the CQAP

6. Performance Standard Verification Plan

The Performing Respondents shall develop and submit a Performance Standard Verification Plan to U.S. EPA for review and approval. The purpose of the Performance Standard Verification Plan is to provide a mechanism to ensure that Performance Standards for the Remedial Action are met. Once approved, the Performance Standards Verification Plan shall be implemented on the approved schedule. The

Performance Standards Verification Plan shall include, at a minimum:

a. Quality Assurance Project Plan (may be part of RA QAPP);
b. Health and Safety Plan (may be part of RA HSP); and
c. Field Sampling Plan.

The Final Design shall fully address all comments made to the Prefinal Design and shall include drawings and specifications. The Prefinal Design shall serve as the Final Design if U.S. EPA has no further comments and issues the notice to proceed.

The Final Design submittals shall include:

a. Final plans, drawings, and sketches and responses to EPA comments on the Prefinal design calculations;
b. Results of studies and additional sampling and analyses conducted after the Prefinal design;
c. Responses to EPA comments on Prefinal design assumptions and parameters, including design restrictions, process performance criteria, appropriate unit processes for the treatment train, and expected removal or treatment efficiencies for both the process and waste (concentration and volume);
d. Proposed cleanup verification methods, including compliance with Applicable or Relevant and Appropriate Requirements (ARARs);
e. Final technical specifications;
f. Planned siting of processes and construction activity;
g. Real estate, easement, and permit requirements; and
h. Revised construction schedule, including contracting strategy.

The Final Design submittals shall also include the following:

a. Final Performance Standard Verification Plan;
b. Final Construction Quality Assurance Plan;
c. Final QAPP, Health & Safety Plan, Sampling Plan, and Final Contingency Plan;
d. Draft Operation and Maintenance Plan;
e. Capital and Operation and Maintenance Cost Estimate (if requested). This cost estimate shall refine the FS cost estimate to reflect the detail presented in the Final Design; and
f. Final Project Schedule for the construction and implementation of the components of the Remedial Action addressed in this SOW which identifies timing for initiation and completion of all critical path tasks. The final project schedule submitted as part of the Final Design shall include specific dates for completion of the project and major milestones.

Task 5: Monthly Progress Reports

The Performing Respondents shall prepare monthly progress reports that contain the following information:

a. A description of activities performed during the reporting period;
b. A summary of data, results, or findings;
c. A description of the status of remedial design activities;
d. An estimate of the percentage of completion of the remedial design activities;
e. A reporting of difficulties encountered;
f. Action being taken to rectify problems identified;
g. Copies of daily reports, inspection reports, laboratory/monitoring data, and other information collected during the reporting period relative to the implementation or evaluation of the remedial design activities;
h. Projected work for the next reporting period; and
i. Changes in key personnel during the reporting period.

VI SUMMARY OF MAJOR DELIVERABLES/SCHEDULE

A summary of the project schedule and reporting requirements contained in this SOW is presented below:

	Submission	Due Date
1.	Draft RD Work Plan	Forty-Five (45) days after the effective date of the AOC.
2.	Final RD Work Plan	Thirty (30) days after receipt of comments
3.	Detailed Predesign Study RD Work Plan	In accordance with the schedule in the Final Work Plan.
4.	Predesign Study Report	In accordance with the schedule in the Detailed Predesign Study Work Plan.
5.	Preliminary Design (30%)	In accordance with the schedule in the Final RD Work Plan.
6.	Design Progress Meeting	Forty-five (45) days after receipt of U.S. EPA comments on the Preliminary Design.
7.	Prefinal Design (95%)	In accordance with the schedule in the Final RD Work Plan.
8.	Final Design (100%)	In accordance with the schedule in the Final RD Work Plan.
9.	Progress Reports	Monthly, by the tenth day of the month.

Attachment III

WAUKEGAN MANUFACTURED GAS AND COKE PLANT SITE

DISTRIBUTION LIST FOR STEERING COMMITTEE FOR REMEDIAL DESIGN

1. Elgin, Joliet and Eastern Railway Company
   Attn. Mr. Thomas Weigel
   Manager, Environmental Compliance
   1141 Maple Road
   Joliet, IL 60432

   Legal Contact:
   Mr. Lee T. Hettinger
   Rooks, Pitts and Poust
   10 South Wacker Drive
   Suite 2300
   Chicago, IL 60606

2. General Motors Corporation
   Attn. Mr. Don A. Schiemann, Legal Section
   3031 W. Grand Blvd.
   MC 482-208-815
   Detroit, MI 48202

   Legal Contact:
   Mr. Jerome I. Maynard
   Dykema Gosset
   55 East Monroe Street, Suite 3050
   Chicago, IL 60603-5709

3. North Shore Gas Company
   Attn. Mr. Stephen H. Armstrong
   Assistant General Counsel
   130 E. Randolph Street
   Chicago, IL 60601

   Legal Contact:
   Mr. Russell B. Selman
   Katten Muchin Zavis
   525 West Monroe Street
   Suite 1600
   Chicago, IL 60661-3693

4. Outboard Marine Corporation
   Attn. Mr. Robert Romano
   General Counsel
   100 Sea Horse Drive
   Waukegan, IL 60085

   Legal Contact:
   Mr. Michael H. Elam
   Piper Marbury Rudnick & Wolfe
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   Chicago, IL 60601-1293